

**What is claimed is:**

- 1) A device for the determination of the frictional characteristics of large surfaces comprising:**

**A) a frame;**

**5 B) a drive motor mounted in the frame;**

**C) a drive train;**

**D) a horizontal measurement arm having a proximate end attached to the drive train and capable of rotation about a circular path induced by the drive train and a distal end;**

**10 E) a spherical frictional slider attached to the distal end that contacts and slides along a surface under evaluation; and**

**F) a tangential force detector on the measurement arm to measure the resistance encountered by the spherical frictional slider as it slides along the surface under evaluation.**

**15**

- 2) The device of claim 1 further including a first housing about the spherical frictional slider and engaging the spherical friction slider.**

- 3) The device of claim 2 wherein the first housing frictionally engages the spherical friction slider.**

**20**

- 4) The device of claim 2 further including an angular position sensor that determines the relative location of the measurement arm about the circular path.
- 5 5) The device of claim 2 further including a lift mechanism for bringing the spherical friction slider into and out of contact with the surface under evaluation.
- 10 6) The device of claim 2 further including a loading assembly that imposes a load on the measurement arm in a direction normal to the surface under evaluation.
- 15 7) The device of claim 5 further including a load force detection device to detect the amount of load applied to the measurement arm.
- 8) The device of claim 2 further including a vertical deviation detector on the measurement arm to detect changes in the topography of the surface under evaluation.
- 20 9) The device of claim 2 further including a second housing that contains the entire frictional testing system.

10) The device of claim 2 further including a data acquisition system for the collection, analysis and archiving of data generated by the tangential force detector.

5 11) A device for the determination of the frictional characteristics of large surfaces comprising:

A) a frame;

B) a drive motor mounted in the frame;

C) a drive train;

10 D) a horizontal measurement arm having a proximate end attached to the drive train and capable of rotation about a circular path induced by the drive train and a distal end;

E) a spherical frictional slider attached to the distal end that contacts and slides along a surface under evaluation;

15 F) a tangential force detector on the measurement arm to measure the resistance encountered by the spherical frictional slider as it slides along the surface under evaluation;

G) a first housing about the spherical frictional slider and engaging the spherical friction slider;

20 H) an angular position sensor that determines the relative location of the measurement arm about the circular path;

I) a lift mechanism for bringing the spherical friction slider into and out of contact with the surface under evaluation;

**J) a loading assembly that imposes a load on the measurement arm  
in a direction normal to the surface under evaluation;**

**K) a vertical deviation detector on the measurement arm to detect  
changes in the topography of the surface under evaluation; and**

**5 L) a data acquisition system for the collection, analysis and archiving  
of data generated by the tangential force detector, the vertical  
deviation detector, the load detector and the angular position  
sensor.**

**10 12) The device of claim 11 further including a housing enclosing the  
device.**

**13) The device of claim 2 further including a Go/No-Go acceptance  
system.**

**15 14) The device of claim 11 further including a Go/No-Go acceptance  
system.**

**20 15) The device of claim 2 wherein the spherical friction slider comprises a  
ball.**